

Applicant : Marple, Jack W.  
Serial No. : 10/719,425  
Filed : November 21, 2003  
Art Unit: 1745  
Examiner: Rhee, Jane J.

### REMARKS

Claims 27 and 29 have been amended, and claim 28 has been cancelled. Claims 1-27 and 29 remain in the application. Reexamination of the application and reconsideration of the application as amended is respectfully requested.

Claim 27 has been amended to incorporate dependent claim 28, and claim 28 has been cancelled.

Claim 29 has been amended to recite that the cell has a ratio of cathode interfacial capacity to electrode assembly interfacial volumes less than  $710 \text{ mAh/cm}^3$ .

The specification has been amended to add "that exceeded  $170^\circ\text{C}$  on the Impact Test".

In the Office action mailed June 1, 2006, claims 1-29 were rejected. Claims 1-8, 10-16 and 19-26 were rejected under 35 USC § 102(e) as being anticipated by or in the alternative, unpatentable under 35 USC § 103(a) over Paulot et al. (EP 1,296,389). Claim 9 was rejected under 35 USC § 103(a) as being unpatentable over Paulot et al. in view of Zhang et al. (US 2002/0064706). Claims 17-18 were rejected under 35 USC § 103(a) as being unpatentable over Paulot et al. in view of Callahan et al. (US 6,602,593). Claims 27-29 were rejected under 35 USC § 103(a) as being unpatentable over Webber (US 5,219,683) et al. in view of Callahan et al. Applicant believes that the rejections of claims 1-26 have been traversed and that the rejection of claims 27 and 29 has been overcome by the above amendment for the reasons provided below.

The Examiner rejected claims 1-8, 10-16 and 19-26 under 35 USC § 102(e) as anticipated by, or in the alternative under 35 USC § 103(a) as being unpatentable over, Paulot et al. (EP 1,296,389). This is not a US patent publication and, therefore, not available as a prior art reference under 35 USC § 102(e). It appears that the Examiner may have intended to rely on the corresponding published US application (2003/0113628), and the Examiner is requested to clarify the rejection. However, Applicant believes that claims 1-8, 10-16 and 19-26 cannot be anticipated by or obvious over Paulot et al. because Paulot et al. do not disclose all of the limitations of independent claims 1 and 21.

Claim 1 of the present application recites an electrochemical battery cell comprising a housing, a negative electrode strip comprising lithium, a positive electrode strip comprising an

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active material mixture, and an electrolyte comprising at least one salt dissolved in a nonaqueous electrolyte disposed within the housing; and a separator disposed between the positive and negative electrodes. The cell has a ratio of a cathode interfacial capacity to an electrode assembly interfacial volume of at least 710 mAh/cm<sup>3</sup>. Independent claim 21, *inter alia*, also recites a cell with a ratio of a cathode interfacial capacity to an electrode assembly interfacial volume of at least 710 mAh/cm<sup>3</sup>, as well as a separator that is a microporous membrane comprising polyethylene, with a machine direction and a transverse direction, an average thickness less than 22 µm and a tensile stress of at least 1.0 kgf/cm in both the machine direction and the transverse direction.

Paulot et al. do not disclose a cell with a ratio of a cathode interfacial capacity to an electrode assembly interfacial volume of at least 710 mAh/cm<sup>3</sup>. The Examiner asserted that because Paulot et al. disclose the same materials desired by the applicant, it is inherent that the ratio of cathode interfacial capacity to electrode assembly interfacial volume is at least 720 mAh/cm<sup>3</sup>. Applicant respectfully disagrees. The characteristics asserted by the Examiner do not meet the criteria for inherency. "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." *In re Rijckaert*, 9 F.3d 1531 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). As disclosed in Example 5 of the present application, cells in Lots D, E and F all included the same materials the Examiner used as a basis for the insertion of inherency (metallic lithium anode material and iron disulfide cathode active material (page 3, lines 18-20, and page 4, line 28)), but the cells in Lots E and F had ratios of cathode interfacial capacity to electrode assembly interfacial volume less than 710 (or 720) mAh/cm<sup>3</sup> (Table 3). Since a ratio of cathode interfacial capacity to electrode assembly interfacial volumes less than 710 mAh/cm<sup>3</sup> is not a characteristic that necessarily flows from the teachings of Paulot et al., claims 1-8, 10-16 and 19-26, which all include this feature, are not anticipated by or obvious over Paulot et al.

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Claims 9 and 17-18 were rejected under 35 USC § 103(a) as being unpatentable over Paulot et al. in view of Zhang et al. or in view of Callahan et al. However, each of these dependent claims includes all of the limitations of claim 1, including a ratio of cathode interfacial capacity to electrode assembly interfacial volumes less than  $710 \text{ mAh/cm}^3$ , and none of the three references relied on by the Examiner in rejecting these claims discloses or suggests this feature.

The Examiner rejected claims 27-29 under 35 USC § 103(a) as being unpatentable over Webber et al. in view of Callahan et al. Claims 27 and 29 have been amended to recite that the cell has a ratio of cathode interfacial capacity to electrode assembly interfacial volumes less than  $710 \text{ mAh/cm}^3$ , a feature that is not disclosed in or suggested by either Webber et al. or Callahan et al.

For the above reasons, Applicant believes that the application is in condition for allowance. Withdrawal of the rejections and allowance of claims 1-27 and 29 is requested.

Respectfully submitted,

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